

AMENDMENTS TO THE CLAIMS

1. (Currently amended) Metalliferous, hydrogen-storing material, comprising a metal for the taking up and releasing ~~absorption and desorption~~ of hydrogen, said metal exhibiting a nanocrystalline structure ~~which contains, and~~
a catalyzing agent for the taking up and releasing of hydrogen by the metal ~~its hydrogenation or dehydrogenation~~, wherein the catalyzing agent is a metal carbonate which also exhibits a nanocrystalline structure, and wherein the metalliferous material comprises a homogeneous distribution of the metal and the catalyzing agent.
2. (Currently amended) Metalliferous material according to claim 1, wherein the metal carbonate consists of a plurality ~~mixtures of~~ metal carbonates.
3. (Canceled)
4. (Canceled)
5. (Currently amended) Metalliferous material according to claim [[4]]2, wherein the metal carbonate is the carbonate of a metal[[s]] selected from the group consisting of Li, Be, B, Na, Mg, Al, Si, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, Rb, Sr, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Cd, In, Sn, Cs, Ba, La, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Fr, Ra, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lw, and mixtures thereof.
6. (Previously presented) Metalliferous material according to claim 1, wherein the metal carbonate is the carbonate of the metals or metal mixtures of the rare earths.
7. (Canceled)

8. (Previously presented) Metalliferous material according to claim 1, wherein the carbonate is formed in-situ from the hydrogen-storing material by the addition of an organic solvent.

9. through 10. (Canceled)

11. (Previously presented) Metalliferous material according to claim 1, wherein the carbonate content is between 0.005 mole% and 20 mole%.

12. (Currently amended) Process for the production of a metalliferous, hydrogen-storing material according to claim 1, the process comprising:

milling of wherein the metalliferous material, and
milling of and/or the catalyzing agent; until a predetermined degree of
pulverization is achieved is or are subjected to a mechanical milling process.

13. (Previously presented) Process according to claim 12, wherein the milling process is carried out for periods of different lengths depending on the metalliferous material and/or catalyzing agent.

14. (Previously presented) Process according to claim 12, wherein the metalliferous material is first subjected to the milling process and subsequently, following the addition of the catalyzing agent to it, the milling process is continued with respect to the metalliferous material and the catalyzing agent.

15. (Previously presented) Process according to claim 12, wherein the catalyzing agent is first subjected to the milling process and subsequently, following the addition of the metalliferous material to it, the milling process is continued with respect to the agent and the metalliferous material.

16. (Previously presented) Process according to claim 12, wherein the metalliferous material and the catalyzing agent are subjected separately to a milling process respectively and subsequently mixed.

17. (Previously presented) Process according to claim 12, wherein the metalliferous material and the catalyzing agent are ground jointly.
18. (Previously presented) Process according to claim 12, wherein the duration of the milling process is in the range of from 1 minute to 200 hours.
19. (Previously presented) Process according to claim 18, wherein the duration of the milling process is in the range of from 20 hours to 100 hours.
20. (Previously presented) Process according to claim 12, wherein the milling process is carried out under an inert gas atmosphere.
21. (Previously presented) Process according to claim 20, wherein the inert gas is argon.
22. (Previously presented) Process according to claim 12, wherein the milling process is carried out with an addition of an organic solvent.
23. (Previously presented) Process according to claim 12, wherein the milling process is carried out under a CO and/or CO₂-containing atmosphere.
24. (Previously presented) Process according to claim 13, wherein the metalliferous material is first subjected to the milling process and subsequently, following the addition of the catalyzing agent to it, the milling process is continued with respect to the metalliferous material and the catalyzing agent.
25. (Previously presented) Process according to claim 13, wherein the catalyzing agent is first subjected to the milling process and subsequently, following the addition of the metalliferous material to it, the milling process is continued with respect to the catalyzing agent and the metalliferous material.

26. (Previously presented) Process according to claim 13, wherein the metalliferous material and the catalyzing agent are subjected separately to a milling process respectively and subsequently mixed.

27. (Previously presented) Process according to claim 13, wherein the metalliferous material and the catalyzing agent are ground jointly.

28. (New) Process according to claim 12, wherein the predetermined degree of pulverization is a homogeneous distribution of the metal and the catalyzing agent.

29. (New) Metalliferous, hydrogen-storing material, comprising:
a metal for the taking up and releasing of hydrogen, said metal exhibiting a nanocrystalline structure, and
a catalyzing agent for the taking up and releasing of hydrogen by the metal,
wherein the catalyzing agent comprises a rare earth metal carbonate, and wherein the catalyzing agent exhibits a nanocrystalline structure.

30. (New) Process for the production of a metalliferous, hydrogen-storing material according to claim 1, wherein the metalliferous material and/or the catalyzing agent is or are subjected to a mechanical milling process, wherein the milling process is carried out with an addition of an organic solvent.

31. (New) Process for the production of a metalliferous, hydrogen-storing material according to claim 1, wherein the metalliferous material and/or the catalyzing agent is or are subjected to a mechanical milling process, wherein the milling process is carried out under a CO and/or CO₂-containing atmosphere.